

GOES Space Environment Monitor

RESTful Web API

Version 1.0

Last Updated: October 2011

INTRODUCTION

The GOES SEM RESTful API is a web service that allows users to download SEM data, metadata and satellite location data from NOAA/NGDC's archive using an HTTP request. Three different kinds of Service API are available satisfy the users' requirements. They are:

- MetadataService API – This service allows metadata downloading in formats that includes XML, CSV and JSON (JavaScript Object Notation).
- DataService API – Using this service, users can download data in CSV, NetCDF and JSON. Data request parameters are used to refine the data search.
- LocationDataService API – This service provides users with the ability to view/download location data of the satellite for a period of time.

Using these various APIs, users can import SEM data directly to their data analysis/processing tool.

AUDIENCE

This document is intended for GOES SEM data users who want to use SEM data and metadata for their research and study. It provides an introduction to using the API, describes the various data request parameters and response formats supported along with bunch of examples. This document assumes that the reader is familiar with RESTful Web service and Hypertext Transfer Protocol (HTTP) technology.

Metadata Service API

The MetadataService API provides the ability to obtain metadata.

Requests

A typical GOES SEM Metadata web service request URL is of the following form:

`http://www.ngdc.noaa.gov/goes/sem/getMetadata/goes_satellite_number/data_type.output`

where,

goes_satellite_number indicates the satellite number. This service provides access to the following GOES Satellite data: GOES-5 thru GOES-15.

Example:

- goes5
- goes13

data_type is obtained by concatenation of the instrument type and the time interval. Click on the links below to see valid data type values for each satellite.

[GOES-5](#) [GOES-6](#) [GOES-7](#) [GOES-8](#) [GOES-9](#) [GOES-10](#)
[GOES-11](#) [GOES-12](#) [GOES-13](#) [GOES-14](#) [GOES-15](#)

output indicates the response format. It may be either of the following values:

- xml - generates output in XML format (Default) - **Follows ISO Metadata Standards**
- csv - generates output in CSV format
- json - generates output in JSON (JavaScript Object Notation) format

Responses

The response formats are indicated by the ***output*** flag in the request URL.

`http://www.ngdc.noaa.gov/goes/sem/getMetadata/goes_satellite_number/data_type.output`

Format	How to specify	Description
XML	xml (default)	Displays the output in XML format.
CSV	csv	Displays the output in CSV (Comma Separated Values) format.
JSON	json	Displays the output in JSON (JavaScript Object Notation) format.

XML Output

Not available yet

CSV Output

A sample HTTP request is shown below for the following search criteria:

- Satellite Number: GOES-13
- Data Type: xrs_1m

Request URL:

http://www.ngdc.noaa.gov/goes/sem/getMetadata/goes13/xrs_1m.csv

The above request returns a data stream containing the requested data in CSV format (like below).

```
field_name,description,long_label,short_label,plot_label,lin_log,units,format,nominal_min,nominal_max,valid_min,valid_max,time_tag,Date and time for each observation,,,,Date and time in the format YYYY-mm-dd hh:mm:ss.SSS UTC,gregorian,,,,
A_AVG,XRS short wavelength channel irradiance (0.05 - 0.4 nm),x-ray (0.05-0.4 nm) irradiance,xs fx,XS(0.05-0.4 nm),lin,A_NUM_PTS,Data points per average.,points/average,pts, ,lin,points/avg,I3,0.0,30.0,0.0,30.0,0.0
A_QUAL_FLAG,Quality flag non-zero value indicates data quality issue.,quality flag,qf, ,lin,qf,I,0.0,4.294967295E9,0
B_AVG,XRS long wavelength channel irradiance (0.1-0.8 nm),x-ray (0.1-0.8 nm) irradiance,xl fx,XL(0.1-0.8 nm),log,B_NUM_PTS,Data points per average.,points/average,pts, ,lin,points/avg,I3,0.0,30.0,0.0,30.0,0.0
B_QUAL_FLAG,Quality flag non-zero value indicates data quality issue.,quality flag,qf, ,lin,qf,I,0.0,4.294967295E9,0
```

JSON Output

The HTTP request for the identical query in JSON format is shown below.

Request URL:

```
http://www.ngdc.noaa.gov/goes/sem/getMetadata/goes13/xrs_1m.json
```

For more info on [JSON](#).

The response is returned in a JSON format. In the response below, few repeated elements has been removed for clarity.

```
{
  • "response_status": "OK",
  • "metadata": [
    ○ {
      ▪ "field_name": "time_tag",
      ▪ "description": "Date and time for each observation",
      ▪ "units": "Date and time in the format YYYY-mm-dd
        hh:mm:ss.SSS UTC",
      ▪ "format": "gregorian"
    },
    ○ {
      ▪ "field_name": "A_AVG",
      ▪ "description": "XRS short wavelength channel irradiance
        (0.05 - 0.4 nm)",
      ▪ "long_label": "x-ray (0.05-0.4 nm) irradiance",
      ▪ "short_label": "xs fx",
      ▪ "plot_label": "XS(0.05-0.4 nm)",
      ▪ "lin_log": "log",
      ▪ "units": "W/m^2",
      ▪ "format": "E10.4",
      ▪ "nominal_min": 1e-9,
      ▪ "nominal_max": 0.001,
      ▪ "valid_min": 0,
      ▪ "valid_max": 0,
      ▪ "missing_value": -99999
    },
    ... additional metadata elements
  ]
}
```

Elements in the JSON response explained.

- The “*metadata*” array contains the metadata.
- The “*response_status*” object contains the status of the request. See below for detailed information.

Response Status Codes

The status of the request is returned in the *response_status* field within the response object. It may be either of the following values:

- **OK** - indicates that the request was processed successfully and response contains valid results.
- In case of invalid request, the *response_status* field indicates the reason for the error.

Debugging the error responses

The error messages may be one of the following:

- Error: The Satellite Number specified in the URL is invalid – The satellite number is specified by the following format: **goesxx**. Check the system home page to see what satellite’s data the system currently supports.
- Error: The data type specified in the URL is invalid – As it clearly states the error is due to invalid data type. Please verify the same on the request URL.

Data Service API

The DataService API provides the ability to obtain data for a particular period of time.

Requests

A typical GOES SEM Data web service request URL is of the following form:

`http://www.ngdc.noaa.gov/goes/sem/getData/goes_satellite_number/data_type.output?parameters`

where,

goes_satellite_number indicates the satellite number. This service provides access to the following GOES Satellite data: GOES-5 thru GOES-15.

Example:

- goes5
- goes13

data_type is obtained by concatenation of the instrument type and the time interval. Click on the links below to see valid data type values for each satellite.

[GOES-5](#) [GOES-6](#) [GOES-7](#) [GOES-8](#) [GOES-9](#) [GOES-10](#)
[GOES-11](#) [GOES-12](#) [GOES-13](#) [GOES-14](#) [GOES-15](#)

output indicates the response format. It may be either of the following values:

- xml - generates output in XML format (Default) - **Follows ISO Metadata Standards**
- csv - generates output in CSV format
- json - generates output in JSON (JavaScript Object Notation) format

Data Request Parameters

Few of the parameters are required while the others are optional. The parameters are separated by ampersand (&) in the request URL.

- **fromDate** (Required) - Defines the start date from which to obtain data. It is represented by the following date format: yyyy-MM-dd

Eg: 20110201

- **toDate** (Required) - Defines the end date from which to obtain data. It is represented by the following date format: yyyy-MM-dd

Eg: 20110201

NOTE: Please limit to 12 months for Time Averaged Data and 14 days for Resolution Data.

- **file** (Optional) - Returns the requested data in a CSV file. By specifying this parameter in the URL, you can download the data in a file. If the parameter is not specified a data stream of the requested data is displayed. It is specified by a Boolean value.

true - to return data in a CSV file

NOTE: This parameter is only available for CSV format.

Responses

The response formats are indicated by the **output** flag in the request URL.

http://www.ngdc.noaa.gov/goes/sem/getData/goes_satellite_number/data_type.output?parameters

Format	How to specify	Description
CSV	csv (Default)	Generates output in CSV (Comma Separated Values) format
NetCDF	nc	Generates output in NetCDF (Network Common data Format) format
JSON	json	Generates output in JSON (JavaScript Object Notation) format

CSV Output

A sample HTTP request is shown below for the following search criteria:

- Satellite Number: GOES-13
- Data Type: epead_a16ew_1m
- fromDate: 20101101
- toDate: 20101101

As a Data Stream:

Request URL:

http://www.ngdc.noaa.gov/goes/sem/getData/goes13/epcad_a16ew_1m.csv?fromDate=20101101&toDate=20101101

The above request returns a data stream containing the requested data in CSV format (like below).

```
time_tag,A1E_NUM_PTS,A1E_QUAL_FLAG,A1E_FLUX,A1W_NUM_PTS,A1W_QUAL_FLAG,A1W_FLUX,A2E_NUM_PTS,A2E_QUAL_FLAG,A2E_FLUX,A2W_NUM_PTS,A2W_QUAL_FLAG,A2W_FLUX
2010-11-01 00:00:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,0.0015476,2,0,0.0,0.00232141,2,0,4.23442E-4
2010-11-01 00:01:00.0,2,0,0.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,0.00686662,1,0,0.0,2,0,0.0,0.00232141,1,0,0.0,0.0015476,2,0,0.0,0.0012703
2010-11-01 00:02:00.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,1,0,0.0,0.0015476,2,0,0.0,1,0,0.0,2,0,0.0,1,0,1.7322E-4
2010-11-01 00:03:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0137332,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,4.23442E-4
2010-11-01 00:04:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,4.23442E-4,2,0,
2010-11-01 00:05:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,4.23442E-4,2,0,0.0,2,0,8.6613E-4
2010-11-01 00:06:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,0.0,0.0012703,2,0,
2010-11-01 00:07:00.0,2,0,0.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,0.0137332,1,0,0.0,0.0137332,2,0,0.0,1,0,0.0,2,0,8.46883E-4,1,0,0.0,
2010-11-01 00:08:00.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,1,0,0.0,2,0,0.0,0.00686662,1,0,0.0,2,0,0.0,7.73802E-4,1,0,0.0,2,0,0.0,0.00127
2010-11-01 00:09:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0137332,2,0,0.0,0.0137332,2,0,7.73802E-4,2,0,0.0,0.0015476,2,0,4.23
2010-11-01 00:10:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,7.73802E-4,2,0,4.23442E-4
2010-11-01 00:11:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0716798,2,0,0.0,0.0137332,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,7.73802E-4,2,0,4.23
2010-11-01 00:12:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,0.00686662,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,0.0015476,2,0,
2010-11-01 00:13:00.0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999
2010-11-01 00:14:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,0.0,2,0,4.23442E-4,2,0,8.46883E-4
2010-11-01 00:15:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,0.0,2,0,8.46883E-4
2010-11-01 00:16:00.0,2,0,0.0,2,0,0.0,0.0891456,2,0,0.0,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,0.00686662,2,0,0.0,0.00232141,2,0,0.0,2,0,0.0,
2010-11-01 00:17:00.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,7.73802E-4,2,0,7.73802E-4,
2010-11-01 00:18:00.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,0.0137332,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,4.23442E-4
2010-11-01 00:19:00.0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999
2010-11-01 00:20:00.0,2,0,0.0,0.0445728,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,0.0,2,0,8.46883E-4
2010-11-01 00:21:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,0.0,
2010-11-01 00:22:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,0.0015476,2,0,0.0,2,0,0.0,2,0,4.23442E-4
2010-11-01 00:23:00.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,0.0137332,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,8.46883E-4
2010-11-01 00:24:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0137332,2,0,0.0,2,0,0.0,7.73802E-4,2,0,4.23442E-4,2,0,4.23442E-4
2010-11-01 00:25:00.0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999,0,0,99999,-99999
2010-11-01 00:26:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,0.0477865,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,0.00232141,2,0,0.0,2,0,4.23442E-4
2010-11-01 00:27:00.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,0.0,0.001693
2010-11-01 00:28:00.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,8.46883E-4,2,0,4.23442E-4,2,0,
2010-11-01 00:29:00.0,2,0,0.0,0.0445728,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,7.73802E-4,2,0,
2010-11-01 00:30:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,0.0477865,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,7.73802E-4,2,0,0.0,2,0,0.0,
2010-11-01 00:31:00.0,1,0,0.0,0.0891456,1,0,0.0,1,0,0.0,1,0,0.0,1,0,0.0,0.0274665,1,0,0.0,0.0274665,1,0,0.0,1,0,0.0,1,0,8.46883E-4,
2010-11-01 00:32:00.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0477865,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,2,0,0.0,2,0,0.0,7.73802E-4,2,0,4.23442E-4
2010-11-01 00:33:00.0,2,0,0.0,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,0.00211721,2,0,0.0,
2010-11-01 00:34:00.0,2,0,0.0,0.0445728,2,0,0.0,0.0445728,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,0.0,2,0,4.23442E-4,2,0,0.0,
2010-11-01 00:35:00.0,2,0,0.0,2,0,0.0,2,0,0.0,0.0238933,2,0,0.0,2,0,0.0,0.00686662,2,0,0.0,7.73802E-4,2,0,0.0,2,0,0.0,0.001693
```

As a file:

Request URL:

http://www.ngdc.noaa.gov/goes/sem/getData/goes13/epcad_a16ew_1m.csv?fromDate=20101101&toDate=20101101&file=true

When opened in the browser, it prompts a “Save as” dialog box. The user can choose to view the file contents or download it to their local machine.

NetCDF Output

The HTTP request for the identical query in NetCDF format is shown below.

Request URL:

```
http://www.ngdc.noaa.gov/goes/sem/getData/goes13/epead_a16ew_1m.nc?fromDate=20101101& toDate=20101101
```

This generates a NetCDF file with the requested data. When opened in the browser, it prompts a “Save as” dialog box. The user can choose to view the file contents or download it to their local machine.

JSON Output

The HTTP request for the identical query in JSON format is shown below.

Request URL:

```
http://www.ngdc.noaa.gov/goes/sem/getData/goes13/epead_a16ew_1m.json?fromDate=20101101& toDate=20101101
```

For more info on [JSON](#).

The response is returned in a JSON format. In the response below, few repeated elements has been removed for clarity.

```
{
  • "response_status": "OK",
  • "data": [
    ○ {
      ▪ "time_tag": "2010-11-01 00:00:00.0",
      ▪ "A1E_NUM_PTS": 2,
      ▪ "A1E_QUAL_FLAG": 0,
      ▪ "A1E_FLUX": 0,
      ▪ "A1W_NUM_PTS": 2,
      ▪ "A1W_QUAL_FLAG": 0,
      ▪ "A1W_FLUX": 0,
      ▪ "A2E_NUM_PTS": 2,
      ▪ "A2E_QUAL_FLAG": 0,
      ▪ "A2E_FLUX": 0,
      ▪ "A2W_NUM_PTS": 2,
      ▪ "A2W_QUAL_FLAG": 0,
      ▪ "A2W_FLUX": 0,
```

```

        ▪ "A3E_NUM_PTS": 2,
        ▪ "A3E_QUAL_FLAG": 0,
        ▪ "A3E_FLUX": 0.00686662,
        ▪ "A3W_NUM_PTS": 2,
        ▪ "A3W_QUAL_FLAG": 0,
        ▪ "A3W_FLUX": 0,
        ▪ "A4E_NUM_PTS": 2,
        ▪ "A4E_QUAL_FLAG": 0,
        ▪ "A4E_FLUX": 0.0015476,
        ▪ "A4W_NUM_PTS": 2,
        ▪ "A4W_QUAL_FLAG": 0,
        ▪ "A4W_FLUX": 0.00232141,
        ▪ "A5E_NUM_PTS": 2,
        ▪ "A5E_QUAL_FLAG": 0,
        ▪ "A5E_FLUX": 0.000423442,
        ▪ "A5W_NUM_PTS": 2,
        ▪ "A5W_QUAL_FLAG": 0,
        ▪ "A5W_FLUX": 0.000846883,
        ▪ "A6E_NUM_PTS": 2,
        ▪ "A6E_QUAL_FLAG": 0,
        ▪ "A6E_FLUX": 0,
        ▪ "A6W_NUM_PTS": 2,
        ▪ "A6W_QUAL_FLAG": 0,
        ▪ "A6W_FLUX": 0.0000866131

    },

    ... additional data elements

    •   ]

}

```

Elements in the JSON response explained.

- The “**data**” array contains the data.
- The “**response_status**” object contains the status of the request. See below for detailed information.

Response Status Codes

The status of the request is returned in the ***response_status*** field within the response object. It may be either of the following values:

- **OK** - indicates that the request was processed successfully and response contains valid results.

- In case of invalid request, the *response_status* field indicates the reason for the error.

Debugging the error responses

The error messages may be one of the following:

- Error: The Satellite Number specified in the URL is invalid – The satellite number is specified by the following format: **goesxx**. Check the system home page to see what satellite's data the system currently supports.
- Error: The data type specified in the URL is invalid – As it clearly states the error is due to invalid data type. Please verify the same on the request URL.
- Error: Missing Data Request Parameters 'fromDate' and 'toDate' – Check if the specified parameters are present in the URL separated by an ampersand (&) symbol.
- Error: Invalid Dates. Please verify the fromDate and toDate parameters. In the this case, check the following:
 - Do they follow the format – yyyy-mm-dd?
 - Are the specified dates' valid ones?
 - There is a download limit which is 12 months for time-averaged data and 14 days for resolution data. Check if the difference between fromDate and toDate is within the download limit time. If not, that's the cause of the error.

LocationData Service API

The LocationDataService API provides the ability to obtain satellite location data for a particular period of time.

Requests

A typical GOES SEM LocationData web service request URL is of the following form:

`http://www.ngdc.noaa.gov/goes/sem/getLocationdata/goes_satellite_number.output?parameters`

where,

goes_satellite_number indicates the satellite number. This service provides access to the following GOES Satellite data: GOES-5 thru GOES-15.

Example:

- goes5
- goes13

output indicates the response format. It may be either of the following values:

- csv - generates output in CSV format (Default)
- json - generates output in JSON (JavaScript Object Notation) format

Data Request Parameters

Few of the parameters are required while the others are optional. The parameters are separated by ampersand (&) in the request URL.

- **fromDate** (Required) - Defines the start date from which to obtain data. It is represented by the following date format: yyyy-MM-dd

Eg: 20110201

- **toDate** (Required) - Defines the end date from which to obtain data. It is represented by the following date format: yyyy-MM-dd

Eg: 20110201

NOTE: Please limit to 12 months of data download.

Responses

The response formats are indicated by the *output* flag in the request URL.

http://www.ngdc.noaa.gov/goes/sem/getData/goes_satellite_number/data_type.output?parameters

Format	How to specify	Description
CSV	csv (Default)	Generates output in CSV (Comma Separated Values) format
JSON	json	Generates output in JSON (JavaScript Object Notation) format

CSV Output

A sample HTTP request is shown below for the following search criteria:

- Satellite Number: GOES-13
- fromDate: 20101101
- toDate: 20101101

Request URL:

<http://www.ngdc.noaa.gov/goes/sem/getLocationdata/goes13.csv?fromDate=20101101&toDate=20101130>

The above request returns a data stream containing the requested data in CSV format (like below).

```
time_tag,west_longitude,inclination
2010-11-01 00:00:00.0,74.6,0.182
2010-11-02 00:00:00.0,74.6,0.183
2010-11-03 00:00:00.0,74.6,0.183
2010-11-04 00:00:00.0,74.6,0.184
2010-11-05 00:00:00.0,74.6,0.186
2010-11-06 00:00:00.0,74.6,0.188
2010-11-07 00:00:00.0,74.6,0.192
2010-11-08 00:00:00.0,74.6,0.195
2010-11-09 00:00:00.0,74.6,0.199
2010-11-10 00:00:00.0,74.6,0.203
2010-11-11 00:00:00.0,74.6,0.206
2010-11-12 00:00:00.0,74.6,0.209
2010-11-13 00:00:00.0,74.6,0.212
2010-11-14 00:00:00.0,74.6,0.213
2010-11-15 00:00:00.0,74.6,0.215
2010-11-16 00:00:00.0,74.6,0.217
2010-11-17 00:00:00.0,74.6,0.219
2010-11-18 00:00:00.0,74.5,0.223
2010-11-19 00:00:00.0,74.5,0.223
2010-11-20 00:00:00.0,74.5,0.225
2010-11-21 00:00:00.0,74.5,0.228
2010-11-22 00:00:00.0,74.5,0.232
2010-11-23 00:00:00.0,74.5,0.236
2010-11-24 00:00:00.0,74.6,0.24
2010-11-25 00:00:00.0,74.6,0.244
2010-11-26 00:00:00.0,74.6,0.247
2010-11-27 00:00:00.0,74.6,0.25
2010-11-28 00:00:00.0,74.6,0.252
2010-11-29 00:00:00.0,74.6,0.254
2010-11-30 00:00:00.0,74.6,0.255
```

JSON Output

The HTTP request for the identical query in JSON format is shown below.

Request URL:

```
http://www.ngdc.noaa.gov /goes/sem/getLocationdata/goes13.json?fromDate=20101101&toDate=20101130
```

For more info on [JSON](#).

The response is returned in a JSON format. In the response below, few repeated elements has been removed for clarity.


```

{
  • "response_status": "OK",
  • "locationdata": [
    ○ {
      ▪ "time_tag": "2010-11-01 00:00:00.0",
      ▪ "west_longitude": 74.6,
      ▪ "inclination": 0.182
    },
    ... additional locationdata elements
  • ]
}

```

Elements in the JSON response explained.

- The “*locationdata*” array contains the metadata.
- The “*response_status*” object contains the status of the request. See below for detailed information.

Response Status Codes

The status of the request is returned in the *response_status* field within the response object. It may be either of the following values:

- **OK** - indicates that the request was processed successfully and response contains valid results.
- In case of invalid request, the *response_status* field indicates the reason for the error.

Debugging the error responses

The error messages may be one of the following:

- Error: The Satellite Number specified in the URL is invalid – The satellite number is specified by the following format: **goesxx**. Check the system home page to see what satellite’s data the system currently supports.
- Error: Missing Data Request Parameters 'fromDate' and 'toDate' – Check if the specified parameters are present in the URL separated by an ampersand (&) symbol.

- Error: Invalid Dates. Please verify the fromDate and toDate parameters. In the this case, check the following:
 - Do they follow the format – yyyy-mm-dd?
 - Are the specified dates' valid ones?
 - There is a download limit which is 12 months for time-averaged data and 14 days for resolution data. Check if the difference between fromDate and toDate is within the download limit time. If not, that's the cause of the error.